Proposed Assessment Design Option Including Pre-Equating (for a grade and a content area)

Highlights of the Proposed Assessment Design

The Assessment design outlined below adheres to the values and priorities held by KDE and KBE, including maintaining professional standards of reliability and validity, maintaining strong support for instruction, maintaining involvement of Kentucky teachers, providing data for low stakes student accountability, meeting federal testing requirements, and providing more student information within a reasonable total testing time.

The following bullets highlight some of the features of the proposed assessment design:

- *Maintaining strong support for instruction:* Maintains single year coverage of each grade level, Core Content area. This is accomplished with 64 multiple-choice (MC) items and 12 open-response (OR) items. (The number of questions includes one common form of 24 common multiple-choice items and 2 common open-response items taken by each student; ten sets of 4 matrix multiple-choice items and ten matrix open-response items wrapped around the common form to vary the test for school accountability purposes; and ten sets of 4 multiple-choice pretest items and ten open-response pretest items wrapped around the common form to vary the test for question development purposes. Essentially, this is a test within a test approach.)
- *Maintaining strong support for instruction, involvement of Kentucky teachers and low stakes student accountability:* Allows for the release of 24 common multiple-choice items and 2 common open-response items per grade level/content area assessed.
- *Providing more student information:* Including both common and matrix items, student scores are based upon 28 MC and 12 OR raw score points for a total of 40 score points. This is only 8 fewer than the 48 raw score points currently assessed. Because all students take the same common items, item statistics for common items would be based upon all students instead of 1/6 of the students, as is currently the case.
- *A reasonable total testing time:* Including pretest items, students would take 3 fewer OR items, reducing testing time by approximately 50 to 55 minutes.
- *Maintaining professional standards of reliability and validity:* Pretesting would allow the test to be refreshed each year, maintaining the consistency of the test from year to year.

NTAPAA Comments on the Proposed Design

- *A reasonable total testing time:* According to NTAPAA, the previous design had too many MC and OR items for the content being covered. The Proposed Design will be able to cover the core content domain more economically with fewer items.
- *A reasonable total testing time:* Having only one matrix OR item on each of 10 forms will greatly reduce the training involved in scoring OR items. For example, while each student's possible score total will be reduced by only 4 score points (compared to a design which includes 2 matrix OR items), 10 fewer OR items per content area and grade level will have to be developed along with their associated training materials.
- *Maintaining strong support for instruction, involvement of Kentucky teachers and low stakes student accountability:* The Proposed design allows for the release of 24 common multiple-choice items and 2 common open-response items per grade level/content area assessed. Several NTAPAA members stated that releasing the common items would provide strong instructional support. They also mentioned that the Department should clearly define the possible uses of the released items and associated student data.
- *Maintaining professional standards of reliability and validity:* Including both common and matrix items, student scores are based upon 28 MC and 12 OR raw score points. NTAPAA supports a 50/50 weighting of these score points and noted that, technically, the weighting was not too different than the current 33/67 weighting applied to an equal number of score points (i.e., 24 MC and 24 OR). Weighting OR (i.e., 12 possible score points) by 50% was also deemed technically sound because students actually spend more time generating OR responses than MC responses.

NTAPAA Comments Regarding Other Issues

- Because the KCCT correlates highly with the ACT, and probably predicts success in college just as well as any other test, it was recommended that the Department not include a separate 10^{th} grade test for the purpose of predicting success in college.
- NTAPAA was not able to offer any new recommendations regarding the placement of tests across grade levels. For example, moving social studies to another grade would cause complicated instructional issues because the content across grades can be very different.

Proposed Kentucky (KCCT) Design Option

Number of Common and Matrix Items -- Operational Test and Pretest

(Note: Because the **Reading** assessment contains passages, the total number of matrix MC items on each form will be 6, for a total of 60 matrix MC items. For **Reading**, there will be a 6:1 ratio of MC to OR for common passages, a 6:1 ratio of MC to OR for matrix passages, and a 6:1 ratio for the pretest passage. The Proposed Assessment Design for Arts & Humanities and Practical Living/Vocational Studies will include 16 common MC, 4 matrix MC, 1 common OR (AH only), and 4 pretest MC. (Release of the common items for these three tests may depend on the number of items available in the item pool.)

Operational Test Items					Pretest Items	
Forms	**Multiple Choice (MC)**		**Open Response (OR)**		**MC**	**OR**
Ten Forms	**MC Common Items Same on Each Form**	**MC Matrix Items Different on Each Form**	**OR Common Items Same on Each Form**	**OR Matrix Items Different on Each Form**	**MC Pretest Items Different on Each Form**	**OR Pretest Item Different on Each Form**
1	24	4	2	1	4	1
2	24	4	2	1	4	1
3	24	4	2	1	4	1
4	24	4	2	1	4	1
5	24	4	2	1	4	1
6	24	4	2	1	4	1
7	24	4	2	1	4	1
8	24	4	2	1	4	1
9	24	4	2	1	4	1
10	24	4	2	1	4	1
Totals	24	40	2	10	40	10

One set of twenty-four common items: 24 x 1 = 24 (Every student takes these same items.)

Ten sets of 4 matrix items: 4 x 10 = 40 (For school account-ability purposes)

One set of two OR items: 2 x 1 = 2 (Every student takes these same items.)

Ten matrix items: 10 x 1 = 10 (For school account-ability purposes)

Pretest: Ten sets of 4 MC (4 x 10 = 40) items and 10 OR (10 x 1 = 10) [For question develop-ment purposes]

Features of the Proposed Assessment Design

- Includes 64 MC and 12 OR operational items to cover a grade/content area. (Uses the common core of the same 24 multiple-choice and the same two open-response with the matrix multiple-choice items and matrix open-response items wrapped around the core to vary the test and provide a measure for school accountability.)

- Student scores would be based upon 28 MC and 12 OR score points (40 total); 70% MC to 30% OR ratio. NTAPAA supports a 50/50 weighting of these score points. Weighting will have to be verified during scaling and equating.

- For Reading, 2 of the 4 common passages would have an OR item associated with them and 2 would not have an OR item.

- A & B Forms for pretest would double pretest items to 80 MC and 20 OR; assuming 50% harvest of pretest items, this would give 40 MC and 10 OR a year for subsequent operational assessments.

There are currently enough items to cover the operational assessment. This would allow our new contractor to focus on developing 80 new MC and 20 new OR items. Pretesting allows the test to be refreshed each year, maintaining the consistency of the test from year to year.

The number of forms, the balance of multiple-choice and open-response items, and the schedule for released items were decision points in defining the new assessment design. The above design considers the purpose of the assessment and how to handle three types of items—field tested, released, and not released. In addition, higher-order thinking skills or higher levels of cognitive complexity would be assessed through both multiple-choice and open-response items. The common items would be released immediately after test administration and scored by teachers, and these could be used for student accountability if the local school/district chose to do so.

Building the KCCT Operational Test in Subsequent Years

- The new KCCT will consist of ten forms featuring multiple-choice and open-response items. Each form will include 32 multiple-choice items, four of which will not count toward the student's score because these items are not part of the operational test. They are pretest items, i.e., ***before*** they are relied upon to measure student learning, they are tried out and assessed.

- In order to maximize the number of pretest items, each of the ten forms is printed in two versions; for example, Form 1 has two versions -- 1A and 1B. The versions are identical except for the pretest items. Form 1A features 4 multiple-choice pretest items and form 1B features 4, completely different, multiple-choice pretest items. This makes a total of 8 different pretest items using Form 1: 4 + 4 = 8.

- Since there are 10 test forms, each with an A and B version, 80 pretest items can be field tested in one test administration (8 x 10 = 80).

- Usually about half of the pretest items are deemed effective. The other half are discarded or returned to the test developers for revision. Out of 80 pretest items, about 40 would be available for the KCCT operational test.

- There are 24 common multiple choice items on each form. Each year the common items are released for use in feedback and instruction. Another 12 items are retired out of the system each year. All together, 36 out of 64 items would be removed from the KCCT each year.

- The 28 remaining items would be reused the following year along with 36 of the 40 effective pretest items. This leaves 4 new items for use the following year. Note that this could also allow for the release of several matrix items as needed.